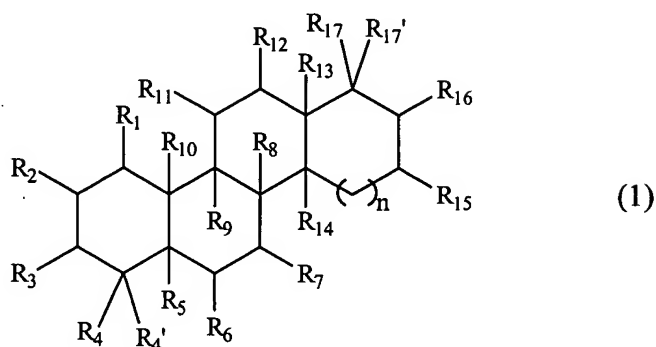


In the claims:

Please amend the claims as follows:

1. (currently amended) A compound of formula (1):



wherein

each of  $R_1$ ,  $R_2$ ,  $R_7$ ,  $R_{11}$ ,  $R_{12}$ ,  $R_{15}$ , and  $R_{16}$ , independently, is hydrogen, hydroxy, amino, carboxyl, oxo, halo, sulfonic acid, -O-sulfonic acid, or alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-, and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid;

$R_4$  is hydrogen, hydroxy, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-, and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid; or  $R_4$  together with  $R_{4'}$  is oxo;

$R_{4'}$  is hydrogen, hydroxy, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-,

and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid; or R<sub>4</sub> together with R<sub>4</sub> is oxo;

each of R<sub>17</sub>, and R<sub>17</sub>, independently, is hydrogen, hydroxy, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, or alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-, and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid;

R<sub>3</sub> is X-Y-, wherein X is hydrogen, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, or alkyl; Y is -S-, -NH-, -N(alkyl)-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-;

R<sub>5</sub> and R<sub>6</sub>, together, are -O-; or R<sub>5</sub> and R<sub>6</sub>, together, are a double bond between C-5 and C-6, and R<sub>7</sub> is oxo;

each of R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>13</sub>, and R<sub>14</sub>, independently, is hydrogen, alkyl, haloalkyl, hydroxyalkyl, alkoxy, hydroxy, or amino; and

n is 0, 1, or 2; and provided that when R<sup>1</sup>, R<sup>2</sup>, R<sup>4</sup>, R<sup>4'</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>11</sup>, R<sup>12</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, and R<sup>17</sup> are hydrogen; R<sup>10</sup> and R<sup>13</sup> are CH<sub>3</sub>; R<sup>5</sup> and R<sup>6</sup> together are a double bond between C-5 and C-6; R<sup>7</sup> is hydrogen or oxo; R<sup>17</sup> is CH<sub>3</sub>CH(CH<sub>2</sub>)<sub>3</sub>CH(CH<sub>3</sub>)<sub>2</sub>; and n is 0, then R<sup>3</sup> is (CH<sub>3</sub>CH<sub>2</sub>)<sub>3</sub>HN<sup>(+)(-)</sup>OSO<sub>2</sub>O- or X-Y- wherein X is hydrogen, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, or alkyl; Y is -S-, -NH-, -N(alkyl)-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -CO-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-.

2. (Original) The compound of claim 1, wherein X is hydrogen or amino, and Y is -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-.

3. (Withdrawn)

4. (Withdrawn)

5. (Withdrawn)

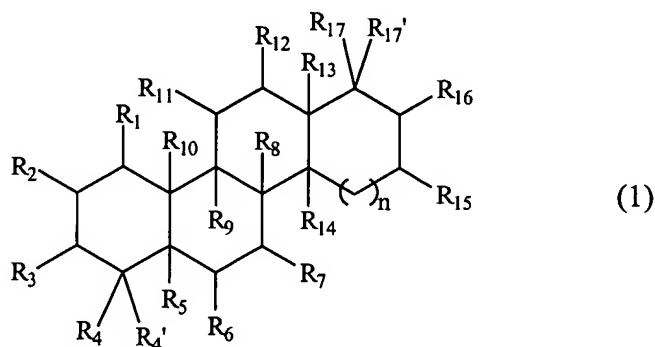
6. (Withdrawn)

7. (Withdrawn)

8. (Withdrawn)

9. (Withdrawn)

10. (Withdrawn)
11. (Withdrawn)
12. (Original) The compound of claim 1, wherein  $R_5$  and  $R_6$ , together, are a double bond between C-5 and C-6, and  $R_7$  is oxo.
13. (Original) The compound of claim 12, wherein X is hydrogen or amino, and Y is -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-.
14. (Original) The compound of claim 13, wherein X is hydrogen, and Y is -SO<sub>3</sub>-O-.
15. (Original) The compound of claim 14, wherein  $R_1$ ,  $R_2$ ,  $R_4$ ,  $R_4'$ ,  $R_7$ ,  $R_8$ ,  $R_9$ ,  $R_{11}$ ,  $R_{12}$ ,  $R_{14}$ ,  $R_{15}$ ,  $R_{16}$ , and  $R_{17}$  are hydrogen; and each of  $R_{10}$ ,  $R_{13}$ , and  $R_{17}'$ , independently, is alkyl.
16. (Cancelled) The compound of claim 15, wherein the compound is 7-keto-cholesterol-3-sulfate.
17. (Withdrawn)
18. (Withdrawn)
19. (Withdrawn)
20. (Withdrawn)
21. (Withdrawn)
22. (Withdrawn)
23. (Withdrawn)
24. (Withdrawn)
25. (Withdrawn)
26. (Withdrawn)
27. (Withdrawn)
28. (Withdrawn)
29. (Withdrawn)
30. (Withdrawn)
31. (Withdrawn)
32. (Withdrawn)
33. (Currently amended) A pharmaceutical composition comprising a compound of formula (1):



wherein:

each of R<sub>1</sub>, R<sub>2</sub>, R<sub>7</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>15</sub>, and R<sub>16</sub>, independently, is hydrogen, hydroxy, amino, carboxyl, oxo, halo, sulfonic acid, -O-sulfonic acid, or alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-, and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid;

R<sub>4</sub> is hydrogen, hydroxy, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-, and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid; or R<sub>4</sub> together with R<sub>4</sub>' is oxo;

R<sub>4</sub>' is hydrogen, hydroxy, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-, and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid; or R<sub>4</sub>' together with R<sub>4</sub> is oxo;

each of R<sub>17</sub>, and R<sub>17</sub>', independently, is hydrogen, hydroxy, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, or alkyl that is optionally inserted with -NH-, -N(alkyl)-, -O-, -S-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-, and further optionally substituted with hydroxy, halo, amino, carboxyl, sulfonic acid, or -O-sulfonic acid;

R<sub>3</sub> is X-Y-, wherein X is hydrogen, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, or alkyl; Y is -S-, -NH-, -N(alkyl)-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-;

R<sub>5</sub> and R<sub>6</sub>, together, are -O-; or R<sub>5</sub> and R<sub>6</sub>, together, are a double bond between C-5 and C-6, and R<sub>7</sub> is oxo;

each of R<sub>8</sub>, R<sub>9</sub>, R<sub>10</sub>, R<sub>13</sub>, and R<sub>14</sub>, independently, is hydrogen, alkyl, haloalkyl, hydroxyalkyl, alkoxy, hydroxy, or amino; and

n is 0, 1, or 2; provided that when R<sup>1</sup>, R<sup>2</sup>, R<sup>4</sup>, R<sup>4'</sup>, R<sup>8</sup>, R<sup>9</sup>, R<sup>11</sup>, R<sup>12</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, and R<sup>17</sup> are hydrogen; R<sup>10</sup> and R<sup>13</sup> are CH<sub>3</sub>; R<sup>5</sup> and R<sup>6</sup> together are a double bond between C-5 and C-6; R<sup>7</sup> is hydrogen or oxo; R<sup>17'</sup> is CH<sub>3</sub>CH(CH<sub>2</sub>)<sub>3</sub>CH(CH<sub>3</sub>)<sub>2</sub>; and n is 0, then R<sup>3</sup> is (CH<sub>3</sub>CH<sub>2</sub>)<sub>2</sub>HN<sup>(+)</sup> (-OSO<sub>2</sub>O- or X-Y- wherein X is hydrogen, amino, carboxyl, halo, sulfonic acid, -O-sulfonic acid, or alkyl; Y is -S-, -NH-, -N(alkyl)-, -SO-, -SO<sub>2</sub>-, -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -CO-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-;

and a pharmaceutically acceptable carrier.

34. (Original) The composition of claim 33, wherein X is hydrogen or amino, and Y is -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-.

35. (Withdrawn)

36. (Withdrawn)

37. (Withdrawn)

38. (Withdrawn)

39. (Withdrawn)

40. (Withdrawn)

41. (Withdrawn)

42. (Withdrawn)

43. (Original) The composition of claim 33, wherein R<sub>5</sub> and R<sub>6</sub>, together, are a double bond between C-5 and C-6, and R<sub>7</sub> is oxo.

44. (Original) The composition of claim 33, wherein X is hydrogen or amino, and Y is -O-SO<sub>2</sub>-, -SO<sub>2</sub>-O-, -SO<sub>3</sub>-O-, -CO-, -CO-O-, -O-CO-, -CO-NH-, -CO-N(alkyl)-, -NH-CO-, or -N(alkyl)-CO-.

45. (Original) The composition of claim 44, wherein X is hydrogen, and Y is -SO<sub>3</sub>-O-.
46. (Original) The composition of claim 45, wherein R<sub>1</sub>, R<sub>2</sub>, R<sub>4</sub>, R<sub>4'</sub>, R<sub>7</sub>, R<sub>8</sub>, R<sub>9</sub>, R<sub>11</sub>, R<sub>12</sub>, R<sub>14</sub>, R<sub>15</sub>, R<sub>16</sub>, and R<sub>17</sub> are hydrogen, and each of R<sub>10</sub>, R<sub>13</sub>, and R<sub>17'</sub>, independently, is alkyl.
47. (Cancelled) The composition of claim 46, wherein the compound is 7-keto-cholesterol-3-sulfate.
48. (Withdrawn)
49. (Withdrawn)
50. (Withdrawn)
51. (Withdrawn)
52. (Withdrawn)
53. (Withdrawn)
54. (Withdrawn)
55. (Withdrawn)
56. (Withdrawn)
57. (Withdrawn)
58. (Withdrawn)
59. (Withdrawn)
60. (Withdrawn)
61. (Withdrawn)
62. (Withdrawn)